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**TITLE:** Backpackers/mountaineers cot.

**BACKGROUND:** This invention relates to a sleeping cot, lightweight enough to be used by backpackers and mountaineers in lieu of the more commonly used therma-rest (inflatable pad) or the ridge rest (foam pad).

**SPECIFICATION:**

Discussion of prior art: Currently in the sports of backpacking and mountaineering, the only lightweight sleeping pads are the therma-rest and the ridge rest. These sleeping pads, although relatively comfortable, have some significant disadvantages. For example: a therma-rest, while providing comfort and insulation, can fail if the barrier is breached causing an air leak and leaving the user in the position of sleeping on cold, icy, rocky, uncomfortable ground. The ridge rest being the lighter of the two is less comfortable and provides less insulation.

Prior art has discussed the use of a backpack cot, i.e. U.S. Patent #5590825, where the cot is incorporated into the external frame backpack. The disadvantages of this idea are that you are basically doubling the weight of your backpack. In addition, you are removing the storage capability of your pack for camping. You would have to displace the entire contents of your pack in order to deploy your cot. Furthermore, the external frame required for this patent has greatly decreased in popularity over the last two decades for many reasons and current users of the external frame pack are not the target markets of this invention.

Objects and advantages: The Backpacker/mountaineers cot will provide a lightweight, comfortable and firm flat sleeping surface regardless of the ground conditions. The cot incorporates tools already in use by the backpacker/mountaineer and therefore will have little effect on increasing the weight to be carried. Currently, many avid backpackers and

mountaineers employ the use of telescoping ski poles or trekking poles, an ice ax if the terrain demands it and an internal frame pack. By incorporating all option levels of the Hicks cot, you would be carrying the cot cloth and six 6 inch legs. The trekking poles become the end stays of your cot. The ice ax is your center stay and the side rails come from the main stays of your internal frame pack. In addition, several different brands of internal frame packs use a relatively similar main stay system, a conversion from existing mainstay design to a mainstay that can act as the siderails of the cot can be manufactured to retrofit an individual current pack allowing the owner to keep his/her original pack. The conversion will match up the metal stay ends of the existing pack requirements with telescoping siderails of the cot. The retrofit will then be made with varying sizes. The adjustable side rails and conversion could thus replace the existing mainstays. This full use of existing tools is called option 1.

When option 1 is not what the owner is interested in because he/she is happy with their current pack or the owner cannot afford the new pack, an individual can use option 2. Option 2 requires the user to carry the side rails in addition to the cloth and the six 6 inch legs. The increase in weight would be relative to a backpacker adding a sleeping pad chair to his/her pack. Special note: the sleeping pad chair is a popular option for backpackers that uses four independent poles stretched over by nylon with pockets on each end to stuff the foam sleeping pad or inflatable sleeping pad. Then the user uses straps to cinch the chair into a sitting position. Option 2 would only require the use of the ski poles and the ice ax. I will also note at this time that the backpacker/mountaineers cot will incorporate the use of four independent side rails and adjustable side straps so the user can use the cot as a camp chair similar to the sleeping pad chair. The ice ax connections to the cot center legs will require a receiver for the point of the ice ax and then a receiver for the shaft of the ice ax on the other end in order to

accommodate different size ice axes. The end receiver legs will be constructed as a trekking pole point receiver leg and trekking pole handle receiver leg.

Option 3 is simply the backpacker option. When using option 3, the only dual use incorporated is the use of the ski poles as the end stays. A standard center stay is used in lieu of the ice ax. Of course, the user could also elect to use the option four backpack, without the ice ax and still be lightweight. The center stay will be the ice ax extender used to extend the length of shorter ice axes in order for the ice ax to fit to the cot as a center stay. The ice ax extender will come in a length that is fitted to the size of the center cot main stay but can be cut down by the user if he/she decides to use the ice ax center stay option.

Option 4 is simply an ultra light cot. It is not as light as a sleeping pad, but a perfect option for the packer looking for comfort. Option 4 could have a secondary target market in the hunter who is looking for the ultra light comfort, but with no need for the other options.

In addition, various cot cloths should be included in the options: a lighter weight mesh for warmer environments, an insulated cot for cold weather and a standard nylon single layer cloth for normal conditions.

**DESCRIPTION:** The following descriptions refer to drawing pages 1 through 5. Each page has two drawings referenced as A and B. A and B refer to different angles of the same subject matter. Existing products are not detailed here, only the detail of the invention as it relates to those existing products.

Drawing page 1 is an overall look at the cot when it is assembled and the position of all of the related material necessary to have the cot assembled. Figure 1a is an above view of the cot. The cot fabric is standard cut length and width of existing cots with sleeves down the length of the cot to hold the side rails. There are four side rails for the cot, each approximately 1/2 the length of the cot. The side rails will be made to telescope in order to facilitate easier packing or adjust to the use as a main stay of internal frame packs. At each end of each side rail is a lock button and lock similar to that used on umbrellas. This lock secures the side rail to each of the six legs of the cot. At each end of the cot are the trekking poles. These trekking poles are on the market today and have a telescoping feature that would allow them to be used as the end stays of the cot. By reducing the trekking pole to the proper length, inserting them into the end legs and then tensioning the trekking pole, the proper fit could be found. The center stay is made from the ice ax. If the ice ax is not used as a center stay, the ice ax extender will be used as the center stay. The ice ax extender will come in a standard length so it functions as a center stay. The user can then cut down the extender to the proper length if they chose to use the ice ax as a center stay. The position of the ice ax on the leg will be lower down so as not to interrupt the sleeping surface of the cot as shown in figure 1b. In addition, an incline strap will be sewn into the cot in order for the user to raise the cot into a camp chair position for uses other than sleep. The center leg will have a swivel screw in order for this to

occur. The detail of the legs that receive the ice ax, trekking poles and side rails are detailed in drawing pages 2 through 5.

Drawing page 2 refers to the end legs that receive the trekking pole tip. There is a side view, 2b, that shows approximate location of the pole tip receiver hole on the end legs. There will be two pole tip receiver legs. One for each trekking pole. 2a shows how the side rail is received by the leg and how the side rail lock is situated. Also noted in 2a is the rubber boot added to the end of each leg in order to reduce damage to the cot leg and the tent floor of the user. This rubber boot will also reduce slippage on slippery surfaces. Figure 2b is the same leg as 2a only rotated 90 degrees to show how the trekking pole tip is received into the receiving leg. The tapered design of the pole will stop the advance of the pole through the leg beyond the tip. There is no locking mechanism for the tip of the pole because the pole will be tensioned after insertion into the legs by its existing telescoping feature. Drawing page 3 refers to the receiver legs that receive the other end of the trekking pole or the "trekking pole handle" receiver leg. Again as in drawing 2a, the side rail receiver hole is shown as is the side rail and associated locking mechanism. Figure 3a shows how the pole handle receiver cup is in position to the rest of the leg components. In figure 3b which is the same as 3a except turned 90 degrees. The pole handle receiver cup shows the required concavity of the handle receiver leg. This is required so as the user tensions the trekking pole and uses the cot, the pole will not slip out of position. Again, there is not a locking mechanism for the trekking pole because the tension of the telescoping pole and the receiver hole design of each leg will lock the pole in place.

Drawing pages 4 and 5 refer to the center legs of the cot. There will be one of each type of center leg. One leg that receives the point of the ice ax and one leg that receive

the shaft of the ice ax. Drawing page 4 refers to the center leg that receives the point of the ice ax. In figure 4a, the location of the ice ax receiver hole is below the side rail receiver hole. This is needed because the ice ax if positioned above the side rail, would interfere with the sleeping surface of the cot. In addition, the upper portion of the center leg is reserved for the swivel motion of the cot incline feature. The figure 4a shows the dotted lines to suggest the various positions of the side rail as it is adjusted with the incline strap. The center of the side rail receiver hole will have a swivel screw that is free floating in the up and down motion. The siderail lock button and lock are again shown. Figure 4b is the same as 4a except turned 90 degrees to show how the ice ax point is received in relation to the other components of the leg. The nature of an ice ax point, which tapers out to the ice ax shaft, will allow this leg to not require a locking mechanism.

Drawing page 5 details the other center leg which receives the shaft and head position of the ice ax as noted again in 5a, the side rail receiver swivel screw and various possible incline positions. The shaft receiver hole shows the required size of the hole and the locking screw , which would clamp down onto the ice ax shaft after it has been properly tensioned onto the cot. Figure 5b is the same as 5a except turned 90 degrees to show the receptor and relating position of the ice ax to the center leg.

Special note: Refer to drawing page 6. Ice axes come in various lengths depending on its intended use and the height of its user. Therefore, it may be required to make an "ice ax point extender". This extender would fit onto the point end of the ice ax, extending its length. There will be a securing screw to hold the extender in place on the ice ax. The extender will come in a standard length which after being sized by its owner, will be cut down in order to

save weight. This extender will come in a standard length that will serve as the center stay of the cot if the ice ax is not going to be used as a center stay by the user.

## **OPERATIONS:**

Needed for operations are the following:

1. Six ft. by 2 1/2 ft. nylon cot fabric with incline strap.
2. Two pole point receiver legs
3. Two pole handle receiver legs.
4. One ice ax point receiver leg.
5. One ice ax shaft receiver leg.
6. Four telescoping siderails. (Adapted from internal frame backpack stays).
7. Ice ax
8. Ice ax extender. (center stay)
9. Two telescoping trekking poles.

The user will lay the cot fabric on the ground insert extended siderails in sleeves. Insert siderails into all six legs and lock into place. Insert point of trekking pole into leg and size so handle fits into appropriate leg. Extend pole until tensioned and tighten down telescoping screws of pole. Repeat for other end of cot. Insert ice ax shaft through ice ax shaft receiver leg hole. Insert point of ice ax into ice ax point leg hole. If needed the ice ax extender can be added at this point. Tension ice ax so cot becomes tight. Tighten ice leg screw on ice ax shaft. Cot is ready for use.



## **SUMMARY:**

The backpackers/mountaineers cot will be a great addition to anyone's backcountry experience. With the relative little difference in weight to be carried, the backpacker could greatly increase his/her comfort regardless of ground conditions. By using tools already being used for other purposes the user is reducing overall weight while greatly increasing comfort. The parallels of equipment is as follows: The user has trekking poles, ice ax, sleeping pad, sleeping pad camp chair and internal frame backpack. The cot user will exchange the sleeping pad and chair for the cot fabric and six cot legs. By adapting the internal frame backpacking stays into the siderails of the cot and using the trekking poles and ice ax as the end and center stays of the cot the user will have the ultimate in efficiency and comfort in the backcountry environment.